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Electrode and photoelectrochemical cell with four layers, method for producing a printable paste which is free from water and binder agents, containing an electrolyte and/or carbon and electrolyte or only carbon, and electrode

Claim Amendments

Claim 1 (currently amended)

~~Proceedures~~ Procedure for manufacturing an electrolyte ~~containing and/or and~~ carbon containing printable paste which is free from water, in the form of an electrode material for a counter electrode containing an electrolyte, in particular as ~~electrode material~~ for a photoelectrochemical cell, with the steps:

- a) preparing a pure aprotic solvent or a aprotic solvent containing electrolytic salts and/ or electrolytic auxiliary or a mixture of both;
- b) adding carbon black ~~[[,]] e. g. with a large surface and/~~ or conductive carbon black and/ or graphite ~~[[,]] e. g. with a very weak electrical resistance~~ or a mixture of at less two of this components to the solvent, so as to produce a suspension;
- c) stirring the solvent containing the carbon black and/ or conductive carbon black or graphite or a mixture of at less two of this components to produce a substantially homogeneous suspension ~~[[;]]~~ and
- d) treating the substantially homogenized suspension with ultrasound to produce a thick, printable paste.

Claim 2 (currently amended)

~~Proceedures~~ Procedure according to patent claim 1, characterized by the fact that in the solvent the electrolyte salts and the electrolyte auxiliary ~~do exist~~ are each present in a concentration ~~in each case, as it is used for an electrolyte for use~~ in a photoelectrochemical cell ~~[[,]]~~ ; ~~while as solvent preferentially γ Butyrolactone is used~~ γ -butyrolactone is used as a aprotic solvent, to which ~~are preferably is~~ added 10 weight % of carbon black with a large surface of 20 m²/g or over ~~and/ or conductivity~~ conductive carbon black with ~~an a~~ maximum electrical resistance of ~~[[max.]]~~ $10^{-4} \Omega$, ~~as well as~~ or a mixture of both, and 8 weight % of graphite with ~~an a~~ maximum electrical resistance of ~~[[max.]]~~ $10^{-4} \Omega$, and the ~~received~~ suspension is stirred for 5 minutes and then treated for 15 minutes with ultrasound.

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Claim 3 (currently amended)

~~Procedures~~ **Procedure** for manufacturing an electrode, ~~in particular which already include the necessary electrolyte to operate a photoelectrochemical cell, in the form of~~ an electrolyte containing electrode of a photoelectrochemical cell, which cover the following steps:

- a) preparing an electrolyte and ~~[[/or]]~~ carbon containing printable paste ~~[[,]] in particular or only a carbon containing printable paste which is free from water, in the form of~~ a paste, which is manufactured in a procedure according to the claims 1 to 2;
- b) applying and pressing the paste on a substrate or a substrate network, ~~in particular on a [[,]]~~ **in the form of** an electrode and at least one light absorbing layer containing, substrate network for a photoelectrochemical cell ~~[[,]] and~~
- c) applying a graphite layer to the paste, preferably by dusting.

Claim 4 (currently amended)

~~Procedures~~ **Procedure** according to the claim 3, characterized by the fact that the paste is pressed with a material covered stamp on the substrate or the substrate network, characterized by the facts that the substrate or the substrate network consists of a light reflecting electrical isolation layer of TiO_2 or that the electrical isolating properties of the substrate or substrate network are increased additionally by layers of cloth, paper or plastic foils.

Claim 5 – 9 (cancelled)**Claim 10 (currently amended)**

Module consisting of photoelectrochemical cells or other products, which contain an electrolyte ~~and/or~~ **a carbon and electrolyte or only a carbon containing printable paste**, which was manufactured in a procedure according to the claims 1 to 2.